



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,213	01/16/2001	Hideo Morohashi	SON-1991	1815

7590 04/05/2004

Ronald P. Kananen, Esq.  
RADER, FISHMAN & GRAUER  
The Lion Building  
1233 20th Street, N.W., Suite 501  
Washington, DC 20036

EXAMINER
----------

NGUYEN, SIMON

ART UNIT	PAPER NUMBER
----------	--------------

2685

8

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/759,213

Applicant(s)

MOROHASHI ET AL.

Examiner

SIMON D NGUYEN

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4, and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 3-4, 6, 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding independent claims 1, 4, 8, the term "ratio" in "a changing ratio of said internal control voltage is set to be larger than a changing ratio of at least in the voltage range" is unclear.

Firstly the RATIO should be involved two elements, for example a Signal/Noise Ratio or a changing voltage range ratio between a voltage range of an internal control voltage over a voltage range of an external control voltage.

Secondly, the term "ratio" has not been used in the Description of the Preferred Embodiments (SPEC), nor explained any where in the SPEC for one skilled in the art to understand.

Thirdly, in the SPEC, the applicant discloses about a changing rate (not a changing ratio) of the internal control voltage (see page 11 lines 17-23 and page 12 lines 8-14).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otaka (6,215,989) in view of Shimomura et al. (6,127,890).

Regarding claim 10, Otaka discloses a variable gain circuit (abstract, figs. 8, 10), comprising: a variable gain circuit having a predetermined gain control range; a control voltage supply circuit (#11) for supplying an internal control voltage ( $V_y$ ) to the variable gain circuit (#12) as a gain control signal, wherein the control voltage supply circuit including a voltage range and a current switch (#17) for generating compensating currents to generate the compensating control voltage at an output terminal in order to supply a larger or smaller voltage to an ideal control voltage line (column 6, column 7 lines 40-46). It should be noted that since Otaka disclosed that the voltage range is expanded to a lower limit or a high limit (column 3 lines 40-55, column 4 lines 45-67). which means the gain circuit having a predetermined gain control range. However, Otaka does not specifically disclose two threshold voltages.

Shimomura discloses a variable gain circuit having a control voltage supply including at least two threshold voltages and a predetermined gain control range (abstract, fig. 8, column 4 lines 30-37). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Otaka, modified by

Art Unit: 2685

Shimomura in order to extending the linearity proportionally to a higher range as well a lower range of a predetermined gain control range.

Regarding claim 11, Otaka further discloses two buffers (Q21, Q22), wherein the second buffer having an output connected to an emitter of transistor (Q11) having an output voltage that can be varied with compensating current from output transistors (column 10 line 50 to column 11 line 4, column 7 lines 40-48).

Regarding claim 7, this claim is rejected for the same reason as set forth in claim 10, wherein Otaka further discloses the linearity of the variable gain circuit to an extent of the external control voltage where the variable gain circuit loses a linearity (column 4 lines 45-65, column 6 lines 1-9, column 12 line 65 to column 13 line 8).

Regarding claim 9, Otaka discloses the variable gain circuits (12b) are connected in cascade (fig.10) or Shimomura (figs.9-10).

Regarding claim 12, this claim is rejected for the same reason as set forth in claim 11.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (703) 308-1116. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (703) 305-4385.

Art Unit: 2685

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

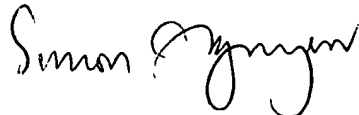
Or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Hand-delivered response should be brought to Crystal Park II,  
2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Simon Nguyen

March 29, 2004

A handwritten signature in black ink, appearing to read "Simon Nguyen", written in a cursive style.